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Biotechnology Notes

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Biotechnology Notes, a compilation of agency activities, news events, and upcoming meetings, is prepared for members of the U.S. Department of Agriculture's (USDA) Committee on Biotechnology in Agriculture (CBA) by USDA's Office of Agricultural Biotechnology (OAB).

INSIDE USDA

THE COLD FACTS ABOUT PLANT GENES

Ever wonder why some crops withstand freezing temperatures while others shrivel up and die at the first sign of frost? Is there any way to make these crops less vulnerable to sudden dips in the thermometer? According to Charles Guy, associate professor of plant physiology at the University of Florida, Gainesville, answers to such questions may lie in research he is pursuing on the molecular biology of cold tolerance in plants.

Using spinach as a model, Guy and his team of scientists have identified two proteins in the plant cell that appear to "turn on" when spinach is exposed to freezing temperatures. Guy says the next step is to clone the genes, sequence them, and use recombinant DNA techniques to put them into a plant vulnerable to freezing, such as the petunia, which is a good genetic model for this type of experiment. If the project is successful, the transformed petunias should be more frost hardy.

Guy said his work in plant cryobiology (the study of life at low temperatures) may eventually help Florida's citrus industry, hard hit by three freezes in the last 10 years, as well as the food storage industry. The growing use of cryopreservation in medicine may also reap some benefits.

Guy's research is supported in part by USDA's Cooperative State Research Service's Competitive Research Grants Program.

OAB HOLDS NATIONWIDE PUBLIC MEETINGS

To encourage public participation, USDA's Office of Agricultural Biotechnology (OAB) held informal public meetings on proposed research guidelines for field testing genetically altered organisms. The meetings took place September 17-26 in Sacramento, Calif; St. Louis, Mo.; Raleigh, N.C.; and Washington, D.C. Those attending represented universities, the biotechnology industry, Federal and state government agencies, consumer and environmental groups, and the media. Participants came from 23 states and five foreign countries.

Comments covered a range of issues including the scientific principles in the Guidelines, the role of the principal investigator, and the need for involvement and training of Institutional Biosafety Committees. Most participants supported USDA's effort to issue guidelines and said guidance is urgently needed to promote safety in field research.

In its written comments, the National Wildlife Federation said it supported the scientific principles generally, but took issue with their "adequacy", saying the guidelines should be replaced with "a policy that protects human health and the environment, fulfills National Environmental Policy Act requirements, and includes meaningful public participation."

The OAB is preparing a summary of the issues and ideas that were presented at the meetings. To obtain a copy, call 202-447-9165.

NEXT ABRAC MEETING IN CHARLESTON, SC

Set aside November 26-27 for the next meeting of USDA's Agricultural Biotechnology Research Advisory Committee (ABRAC). It is open to the public and will be held at the Mills House Hotel, Planter's Suite, 115 Meeting Street, Charleston, S.C. 29401. This will be the first time ABRAC has met outside Washington, DC.

Topics slated for discussion include: recent public meetings on the research guidelines, a request from the National Association of State Universities and Land Grant Colleges for ABRAC assistance in preparing petitions to regulatory agencies; and updates on the transgenic fish proposal, a rhizobia field test, and progress by the Food Safety and Inspection Service (FSIS) in developing its policies for slaughter of food animals used in biotechnology research.

For more information about the ABRAC meeting, call OAB at 202-447-9165.

ANIMALS AND BIOTECHNOLOGY

At the last meeting of USDA's Biotechnology Council, held September 25, guest speakers Connie Bacon of FSIS and Gary Weber, Extension Service, discussed current issues related to animals and biotechnology. Bacon updated Council members on developing policies for slaughter of experimental transgenic animals and policies for animals used in transgenic experiments in which the animals were not genetically altered. These are often referred to as "no takes."

The success rate for incorporating a new gene into food animals, such as the growth hormone gene, is often low. FSIS is developing

criteria for identifying which experimental animals are not genetically altered and can be safely allowed to enter the human food chain.

Weber discussed a meeting he is organizing on biotechnology. It is called "Control of Growth and Product Quality in Meat Production: Implications and Acceptability," and takes place December 5-7 in Rockville, Md. For more information, call Weber at 202-447-2677.

The Biotechnology Council is chaired by OAB Director Alvin Young and comprised of senior level officials from USDA agencies with biotechnology-related activities.

NEW US-EC TASK FORCE ON BIOTECHNOLOGY SETS GOALS

Genome mapping, research databases, exchange of post-doctoral fellows, public education, a workshop on in-vitro testing, and biosafety were several of the areas identified for possible collaboration at the first meeting of the U.S.-E.C. Task Force on Biotechnology Research, September 10-11, in Washington, D.C.

Secretary of Agriculture Clayton Yeutter and Allan Bromley, Assistant to the President for Science and Technology, addressed the group. Both stressed the importance of the meeting in setting the stage for future cooperation between the Commission of the European Communities (EC) and the U.S. Government. The Task Force was established September 7, 1990 and is designed to serve as a mechanism for exchange of information regarding scientific aspects of biotechnology. It is co-chaired by Charles Hess, USDA Assistant Secretary for Science and Education, and Paolo Fasella, Director General of the EC Directorate XII (Science, Research and Development). The next meeting is planned for July 1991 in Brussels.

NEWS AROUND THE COUNTRY (AND THE WORLD)

EAST MEETS WEST

Plan a national biotechnology strategy, allocate more money for environmental research, and maintain open channels of communication were three of the recommendations made at a conference held in Bangkok, Thailand, August 21-24. Entitled "Biotechnology and Environmental Science: Molecular Approaches", the meeting featured a panel discussion with top government officials from Thailand who discussed future research and governmental strategies in overcoming deforestation and chemical pollution problems. Also on the program were Sally McCammon, senior plant pathologist at USDA's APHIS and Cathy Joyce, APHIS biotechnologist. Joyce spoke on USDA's

permitting process for transgenic organisms and McCammon discussed global harmonization of biotechnology regulations.

EPA WRESTLES WITH SCOPE

The science advisory panel to the Environmental Protection Agency (EPA) met September 26 to review a proposal for regulation of small-scale testing of microbial pesticides. A major topic of discussion focused on an appropriate definition for those microorganisms with modified hereditary traits which EPA should regulate under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Specific recommendations were made using as a reference point a document on proposed principles for oversight published by the Office of Science and Technology Policy.

BIOTECH CENTER OPENS IN HUNGARY

Northeast of Budapest in the city of Godollo is the site of Hungary's recently opened Agricultural Biotechnology Center. According to the June 29, 1990 issue of Agrow, researchable projects are available, and the center is ready to receive scientists. Funding, however, could be a problem during the first 4 years, at least until the center begins publishing its research results.

The unit cost \$30 million to construct and it has state-of-the-art ultracentrifuges, a Microvax computer, and a pollen-proof greenhouse area for isolating genetically engineered plants. The general director is Ervin Balazs.

NEW INDIAN CONTROLS FOR RELEASES

India's recently formed Genetic Engineering Approval Committee now has the authority to regulate the production and release of potentially harmful microorganisms and genetically engineered organisms. Those needing the Committee's approval include all users and producers of the controlled organisms as well as manufacturers and sellers of food, food additives, and pharmaceuticals produced by recombinant DNA techniques.

ALL IN A DAY'S WORK

Fielding questions about biotechnology from 26 of the nation's top journalists may not be your cup of tea, but for OAB Director Alvin Young it was -- all in a day's work.

The reporters and broadcasters were gathered for an intensive 2-week seminar on biotechnology at the Knight Center for Specialized

Journalism at the University of Maryland, College Park, Md. Young's presentation on policy issues was followed by a question and answer session. The journalists asked about Germany's new gene law, bovine somatotropin, the wood products and seed industries, international competition, differences in funding levels for agricultural and biomedical research, use of biotechnology in developing nations, and intellectual property rights.

All of the journalists competed for the opportunity to attend the seminar, which covered both agricultural and biomedical biotechnology and included lectures, demonstrations, and round table discussions, as well as visits to the Agricultural Research Center, the National Institutes of Health, and the Johns Hopkins University.

IN CASE YOU WEREN'T THERE

- OAB Deputy Director Daniel Jones spoke on "Biotechnology and Food Production, Processing, and Safety" at a September 12 meeting of Dietitians in Business and Industry in Washington, D.C. He said biotechnology holds great promise in improving the nutritional attributes of animal products by lowering the levels of fat, saturated fatty acids, and cholesterol. Jones said biotechnology can also help to improve the detection and control of food-borne microorganisms through the use of DNA probes that bind to the genetic material of microbes. He cited several recent advances in food biotechnology, including a new genetically engineered variety of bakers' yeast which should facilitate consistent fermentations, more uniform sugar concentrations, and better bakery product quality.

- "An International Perspective on Biotechnology and Nutrition," was the title of Alvin Young's presentation before the International Symposium on Biotechnology and Nutrition, September 24, at the University of Maryland, College Park, Md. Young said that in order for the benefits of biotechnology to be fully realized by developing countries, it is crucial for industrialized nations of the world to deal more effectively with consumer acceptance and regulatory policy. Toward this end he recommended researchers actively communicate with the public informing them about both the risks and the benefits associated with biotechnology. He also emphasized the need to develop systems of oversight which do not overburden the research community with regulatory requirements in areas already known to be safe.

- Speaking before a large group of industry and academic mavens at the AgTech '90 Conference and Trade Show in St. Louis, Mo., September 19, Alvin Young talked about the "crossroads" in biotechnology. He said lack of public confidence is proving to be a hindrance for companies ready to begin commercializing their

products and that more environmental data could help to allay consumer fears.

- On October 2 representatives from USDA, academia, the biotech industry, and public interest groups offered testimony on Capitol Hill before a House of Representatives Committee on Agriculture hearing concerning USDA's current and future Federal biotechnology regulations. Committee members examined the adequacy of current law and considered the need to broaden USDA's authority to protect agriculture, the environment, and public health.

- The Third International Symposium on Biotechnology and Nutrition took place September 24-26 at the University of Maryland, College Park, Md. Sessions focused on human nutrition, ameliorated proteins, enhancement of vitamins and minerals, and molecular approaches to modifying production of edible oils.

NEW PUBLICATIONS

- Microbes and Microbial Products as Herbicides. Edited by Robert E. Hoagland. ACS Symposium Series No. 439. September 1990. \$79.95. Order from your local bookseller or by calling 1-800-ACS-5558.

- The 1990 Farm Chemicals Handbook. Meister Publishing Company. To order call 1-800-341-1522.

- Biotechnology in Japan Yearbook 1990/91: Markets and Research/Development. \$1200. To order call Yoriko Kishimoto or Pauline Drent at 415-322-8441.

- Biotechnology: Science, Education and Commercialization -- An International Symposium. Edited by Indra K. Vasel. 1990. Based on symposium held at University of Florida, Gainesville, December 3-6, 1989. To order a copy, write to Elsevier Science Publishing Co. Inc., 655 Avenue of the Americas, New York, N.Y. 10010.

- Biotechnology Education. Targeted for teachers who wish to introduce aspects of biotechnology into their existing courses. Articles give details of simple class experiments. 1990. ISSN: 0955-6621. For information on ordering, write to Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, N.Y. 10523.

UPCOMING MEETINGS

Nov. 6-7: U.S. Environmental Protection Agency Conference on Pesticidal Transgenic Plants. Annapolis, Md. Call Pat Kottmann, Eastern Research Group Inc., Arlington, Mass., at 617-641-5341.

Nov. 15-16: "Biotechnology and the Environment: Managing the Risks." Montreal, Quebec, Canada. Organized by the University of Quebec at Montreal. For details call Ms. Denyse Pronovost at 514-987-7944.

Nov. 18-25: "The Latin American Biotechnology Encounter." San Jose, Costa Rica. Sponsored by the Latin American Federation of Biotechnology Firms. For more information, FAX inquiries to 506-24-6169.

Nov. 26-27: Meeting of USDA's Agricultural Biotechnology Research Advisory Committee. Charleston, S.C. Mills House Hotel, Planters' Suite, Second Floor, Meeting and Queen Streets. Open to the public. Call OAB at 202-447-9165.

Nov. 27-29: "Biotech USA '90." Conference and exhibition. Washington, D.C. For details write to Conference Management Corporation, 200 Connecticut Ave., Norwalk Conn. 06854-9961.

Nov. 27-30: "The Biosafety Results of Field Tests of Genetically Modified Plants and Microorganisms." Kiawah Island, S.C. Call Martha Steinbock, USDA/OAB, at 703-235-4415.

Dec. 2-4: BIONET 8th Annual Meeting. Toronto, Ontario, Canada. Call 613-957-0298; the FAX number is 613-952-7422.

Dec. 5-7: International Symposium on "Biotechnology for Control of Growth and Product Quality in Meat Production: Implications and Acceptability." Rockville, Md. Call Gary Weber, USDA/ES, at 202-447-2677.

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Biotechnology Notes is prepared by Marti Asner, public affairs specialist in USDA's Office of Agricultural Biotechnology. Suggestions for articles are always appreciated and may be sent to USDA/OAB, Room 321-A, Administration Building, 14th and Independence Ave., S.W., Washington, D.C. 20250; or phone 202-447-9165. The FAX number is 202-447-8095.

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